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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,857	03/05/2002	Masahiro Komatsu	Q68777	8360
23373	7590	06/07/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			LEVITAN, DMITRY	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/087,857	Applicant(s) KOMATSU, MASAHIRO	
	Examiner Dmitry Levitan	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01/08/04.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “8” has been used to designate both Transmitter and Antenna on Fig. 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b).
3. The disclosure is objected to because of the following informalities:  
typographical errors on page 3: pieces instead of places on line 9 and millimeter second instead of millisecond on line 19.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 limitation “to make a receiving state of a down-link good” is unclear, because it is not understood what states of down-link are considered good and what are not in the absence of related criteria.

Claims 1 and 10 recite the limitation "the basis of the transmission state control command" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claims 1 and 10 recite the limitation "the transmission antenna of said mobile station" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the base of said transmission state control command" in line 18. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 limitation “the transmission line state of said estimated uplink and the transmission state of said estimated downlink transmission line state estimation” is unclear, because it is not understood how this limitation is connected to the other limitations of claim 1.

Claims 7 and 16 limitation “a transmitted power control command column” is unclear, because it is not understood what is power control command column.

Claims 8, 9, 17 and 18 limitations “when the transmission line state of said up-link is bad”, “up-link is good”, “good characteristics”, etc are unclear, because it is not understood what is good or bad in the absence of appropriate criteria.

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Claims 8 and 17 limitation "said uplink is bad" on line 4 is unclear, because it contradicts the limitation "a good characteristic of said uplink" on line 7.

Claims 9 and 18 limitations "performs the control so as to transmit in a specific transmission state" are unclear as written.

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 6, 10-13 and 15 are rejected (as best understood) under 35 U.S.C. 103(a) as being unpatentable over Paulraj (US 6,351,499) in view of Austin (US 6,799,059).

8. Regarding claims 1, 3, 4, 10, 12 and 13, Paulraj substantially teaches the limitations of the claims.

A base station and a method, wherein a transmission state control command is received from a mobile station via an uplink to improve a receiving state of a downlink at the mobile station and the transmission state control command controls a transmission state of the CDMA base station having more than two transmission antennas (cellular CDMA system 5:11-14, comprising base station 12 and mobile units 14, shown on Fig. 1 and 2 and disclosed on 5:45-6:25, wherein base station 12 comprises numerous transmission antennas 18 A-M and receives an uplink command/feedback 42 from the mobile unit 14 to improve the base station transmission 6:26-50), comprising:

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a receiving portion which receives a signal from said uplink (receiving portion shown on Fig. 3 as feedback 64, comprising a quality parameter 6:65-7:7),

a link transmission line state estimation portion which estimates the transmission state of a link with said mobile station from said received signal (adaptive controller 60 to derive the link quality parameter from the received feedback 6:65-7:7 comprising SINR and estimate the link BER using the data from database 68 7:50-8:22),

a transmission state control portion which controls the transmission state of said CDMA base station and under control of said transmission state control command extracted from the received signal (control unit 62, comprising adaptive controller 60, to control converter 58, which defines the transmission state of the base station 6:50-7:7),

a transmission portion which performs transmission processing in a transmission state instructed by said transmission state control portion (converter 58 on Fig. 3 adjusted by control unit 62 to improve the transmission state 3:53-67).

Paulraj does not teach separate estimations of uplink and downlink portions of the link between the base station and the mobile unit.

Austin teaches separate estimations of uplink and downlink portions of the link between the base station and the mobile unit (mobile telephone system comprising a base station with two or more antennas, abstract and Fig. 4, wherein the mobile unit estimates the downlink signal quality 7:7-17 and base station estimated the uplink signal quality 7:30-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add separate estimations of uplink and downlink portions of the link between the base station and the mobile unit of Austin to the system of Paulraj and locate the uplink and

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downlink estimators at the base station to simplify the mobile station design and improve their power consumption and improve the system estimation operation by separating uplink and downlink quality problems.

9. Regarding claims 2, 6, 11 and 15, Paulraj teaches estimating the transmission state of the link based on the level of the received signal (Abstract).

10. Claims 5, 7, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulraj in view of Austin in view of Sourour (US 6,768,727).

11. Regarding claims 5 and 14, Paulraj in view of Austin substantially teaches the limitations of claims 5 and 14 (see claims 1 and 10 rejection above).

Paulraj in view of Austin does not teach estimating the transmission state based on FER.

Sourour teaches estimating the transmission state based on FER (using target FER as a quality standard for a transmission link 2:5-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add estimating the transmission state based on FER of Sourour to the system of Paulraj in view of Austin to improve the system quality estimation compatible with CDMA standard.

12. Regarding claims 7 and 16, Paulraj in view of Austin substantially teaches the limitations of the claims (see claims 1 and 10 rejection above).

Paulraj in view of Austin does not teach estimating the transmission line state of said downlink from a transmitted power control command column, contained in the received signal.

Sourour teaches estimating the transmission state based on a transmitted power control command field, contained in the received signal (estimating/ensuring the channel SIR based on

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the power control in the reverse link 1:49-57 and sending power control bits to regulate the base station power 2:4-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add estimating the transmission state based on a transmitted power control command of Sourour to the system of Paulraj in view of Austin and put the commands/bits in a column as a design choice, because the commands/bits located in lines will work in the system as well, to improve the system quality estimation compatible with CDMA standard.

13. Claims 8, 9, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulraj in view of Austin in view of Li (US 6,185,431).

Paulraj in view of Austin substantially teaches the limitations of the claims (see claims 1 and 10 rejection above).

Paulraj in view of Austin does not teach ignoring the control command in a poor condition of the uplink or the downlink and returning to the acceptance of the control command when the link condition improves.

Li teaches ignoring the power control command in a poor condition of the link and returning to the acceptance of the power control command when the link condition improves (ignoring the power control signals when the channel is weak to avoid erroneous interpretation as shown on Fig. 7 and Abstract, see ignore control command 630).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add ignoring the control command in a poor condition of the uplink or the downlink and returning to the acceptance of the control command when the link condition improves of Li



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to the system of Paulraj in view of Austin to improve the system operation in noisy or poor link environment.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571) 272-7529. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dmitry Levitan  
Examiner  
Art Unit 2616